ABSTRACT

[00087] The invention relates to a semiconductor structure for use in the near infrared region, preferably in the range from 1.3 to 1.6 μm, said structure comprising an active zone consisting of a plurality of epitaxially grown alternating layers of Si and Ge, a base layer of a first conductivity type disposed on one side of said active zone, and a cladding layer of the opposite conductivity type to the base layer, the cladding layer being provided on the opposite side of said active zone from said base layer, wherein the alternating Si and Ge layers of said active zone form a superlattice so that holes are located in quantized energy levels associated with a valance band and electrons are localized in a miniband associated with the conduction band and resulting from the superlattice structure. The invention is also directed to a method of manufacturing aforementioned structure.